MAINE STREAM TEAM PROGRAM

Maine Stream Team Program NEWS

Networking, Education, and Stewardship

DEPARTMENT OF ENVIRONMENTAL PROTECTION · STATE OF MAINE ·

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STORMWATER

What the heck is this "stormwater" that I've been hearing about in the media? I generated a list of 674,000 links when I did a search on the Internet, so I guess it must be an important topic. Well, in fact, it is.

During much of the 1960s, 1970s, and 1980s, water pollution control efforts were targeted largely at pollution from industrial and wastewater discharges. Gradually, however, these discharges came under greater regulation and were reduced significantly. Now greater focus is being placed upon the significant amount of pollution that comes from the other major source-polluted runoff. When it rains or when snow melts, runoff (*stormwater*) moves across the landscape picking up pollutants that end up being deposited in lakes, rivers, streams, and wetlands.

This polluted runoff (*stormwater*) originates from a variety of land uses including agriculture and forestry, as well as activities and developments located in urban and suburban areas. In this article, I'll focus upon urban and suburban land-uses because federal, state and local action currently is being focused in these areas.

When a landscape is transformed into urban or suburban areas, a number of changes occur. First, there is a much greater quantity of stormwater than what comes off forestland, and second, more sources of pollution to be moved by that water. Initially, as land is disturbed, bare soil becomes exposed, soil erosion occurs, and oftentimes, sediment is washed into waterways during rain or snowmelt events. Next, many acres of natural forestland, grassland, and wetland are transformed into "impervious" surfaces like asphalt, concrete, metal, and compacted-soil lawns as buildings, parking lots, and roads are built. Soon, many more cars and trucks, which are significant sources of pollutants, are drawn to the area. (*continued on page 2*)

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Left: Stormwater draining off a parking lot into a “storm drain”; Right: A stormwater system outlet during dry weather.

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As mentioned earlier, these landscape changes alter both the local water cycle and pollutant loading of our waterways. In forestland or grassland areas, most rainfall slowly soaks into the ground and eventually reaches streams and ponds, by way of springs and groundwater seepage, as clean and cool water. Only a fraction of this rainfall runs immediately into streams and ponds. Alternatively, in urban and dense suburban areas, most rainfall lands on impervious surfaces. In most cases, this water flows into storm drains that connect to a stormwater collection system which eventually drains into a nearby stream or pond. The effect of the change in landuse means that rainstorm and snowmelt events are much more flashy (they reach peak flows faster). The effect of sustained, high flows from these urban landscapes can sometimes be to trigger severe instability and erosion in stream channels. This erosion harms the aquatic life by silting up fish spawning and nursery areas, irritating fish gills that lead to injury and death, and smothering other organisms. Often, there are structures in place that are designed to reduce the pollutant loads and control the high flows. In many places, however, at least some pollution and excess volume of stormwater escapes these controls and makes its way into local waterways and the communities (including fish and shellfish) that live there. That’s why we all need to do our part!

As homeowners, we contribute our share of pollution to waterways in the form of bare soil, fertilizers, pesticides, oil & grease from cars, and pet wastes, as well as excess stormwater from large roofs and driveways. Here are a few things you can do to reduce your contribution to polluted stormwater:

- stabilize soil so bare soil is not exposed to prevent soil erosion,
- minimize use of fertilizers, do a soil test and only use the amount and type needed, and avoid pesticides,
- use wide strips of trees and shrubs to filter runoff before it leaves your property,
- never dump anything down storm drains,
- check your car for leaks,
- put pet waste in trash, bury it or flush it,
- encourage your town to promote “smart growth” and innovative landscaping technologies such “green roofs” and smaller, more-pervious parking lots
- try using simple stormwater collection systems such as raingardens and rain barrels and use this resource to water your garden or lawn < www.epa.gov/reg3esd1/garden/stormwater.htm >.

See Stormwater Resources on page 6.

Critter Corner: What is that Slime or Film you see in Streams?

Here is a photograph of natural, orange-reddish, iron-oxidizing bacteria in a small stream in Maine. You can view this image in color online at <www.state.me.us/dep/blwq/newslet/mstpnews.pdf>.

Often people see oily-like film on the water surface, black coated rocks or slimy orange-reddish material in streams or where groundwater exits from the ground and believe it to be pollution. While this may be the situation, in most cases it is due to the presence of naturally occurring bacteria.

Bacteria are microscopic organisms that are widespread in the natural environment including in soil and water. Flowing waters of streams and rivers have populations of bacteria found throughout the stream including on the water surface, water column, attached to rocks, vegetation and in the stream sediments. Bacteria play an important role in the ecosystem. Their primary role is chemical processing and the breakdown of organic material. In streams, when organic material such as leaves and twigs are deposited in streams, bacteria aid in breaking down this major food source.

Groundwater that exits into streams or the ground surface is anoxic (not oxygenated) and it may carry elements such as iron and manganese. Bacteria react with the iron or manganese, either adding or removing oxygen, resulting accumulations of floc (clumps of solids in water) that are either orange-reddish, black or other colors. The color of the floc depends on what the bacteria is reacting with and whether it is adding or removing oxygen. Orange-reddish slime is a result of the oxidation of iron. Black color may be due to either bacteria reacting with manganese or due to accumulations of floc in a reduced state (oxygen has been removed). A common concern for people is an oily film on the water which they believe to be oil or gasoline. You can tell whether the film is bacteria by stirring it up. If it stays broken up then it is bacteria. If it comes back together then it is petroleum pollution.

(Information for this article was obtained from the United States Geological website: <pubs.usgs.gov/publications/text/norriemicrobes.html>. The site also contains further information about identification and collection methods.)

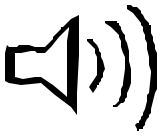
$$ Grant Opportunities $$

Funder	Region	Deadline(s)	Phone	Web Site / *E-mail*
Haymarket People's Fund	CT, ME, NH, RI and VT	10/1/03 & 2/1/04	(617) 522-7676	www.haymarket.org *tommie@haymarket.org*
American Rivers	Northeast, Mid-Atlantic, California	11/1/03 & 4/1/04	202-347-7550	www.amrivers.org/feature/restorationgrants.htm
Tom's of Maine, Inc.	National (emphasis on ME)	11/1/03 thru 2/1/04	(207) 985-3982	www.tomsofmaine.com/about/grants.asp
Trout Unlimited - Embrace A Stream Program	National	12/22/03	(703) 522-0200	www.tu.org/conservation/eas.asp *eas@tu.org*
John Sage Foundation	ME	2/15/04 & 8/15/04	(207) 722-3543	www.megrants.org/Johnsagefront.html *donjane@prexar.com*
Casco Bay Estuary Project — Habitat Protection Fund	Casco Bay Watershed (ME)	Revolving	(207) 780-4820	www.cascobay.usm.maine.edu/habitat.html
New England Grassroots Environment Fund	CT, MA, ME, NH, RI, and VT	Revolving	(802) 223-4622	www.grassrootsfund.org *info@grassrootsfund.org*
Sudbury Foundation	Gulf of ME	Revolving	(978) 443-0849	www.sudburyfoundation.org *tanner@sudburyfoundation.org*
Maine Community Foundation (several grants)	Maine	1/15, 5/15 & Rolling	(207)-667-9735	www.mainecf.org
National Fish and Wildlife Foundation	National	Revolving	(978)-443-0498	www.nfwf.org/programs/guidelines.htm
EE-Link Environmental Education Grants Listing	National	Various	Www.epa.gov/teachers/grants/htm -or- Eelink.net/grants-eespecificresources.html	
The U. S. Environmental Protection Agency has recently updated the Catalog of Federal Funding Sources for Watershed Protection. This searchable database is now available on-line at <www.epa.gov/watershedfunding.org>				

Nonpoint Source (319) Grants Awarded

Three river projects were chosen through the Department of Environmental Protection's request for proposal process to receive funding under EPA Section 319 of the Federal Clean Water Act. These projects will begin in Spring 2004. The projects are: 1) Piscataqua River (East Branch) Watershed Survey sponsored by Presumpscot River Watch; 2) Project to Develop a Sheepscot River Watershed Management Plan sponsored by Time & Tide Resource Conservation & Development; and 3) Great Works River Watershed Management Plan sponsored by York County Soil & Water Conservation District.

Announcements



- **Resource for Local Governments**

The University of Virginia's Institute for Environmental Negotiation has produced a new book, "A Stream Corridor Protection Strategy for Local Governments." The handbook is designed to help implement many facets of the Chesapeake 2000 agreement. In particular, the handbook aims to protect forested stream buffers and development of local watershed plans. It describes how to devise an effective stream protection strategy, provide tools such as the use of zoning to protect local streams, give case studies of successful projects and how to engage the local community. Visit: <www.virginia.edu/ien/publications.htm>.

- **No Interest Loans for Land Conservation**

In an effort to facilitate the land conservation work of grassroots organizations across the country, The Norcross Wildlife Foundation is offering a rare source of financial support, a No-Interest Loan Fund for Land Protection. Applicants must be private, non-profit organizations (NGOs) as determined by the Internal Revenue Service. Loans of up to $250,000 may be made for the purpose of acquiring interests in land that possesses priority wildlife habitat. To learn more about the Norcross Wildlife Foundation and its No-Interest Loan Fund, or to download a loan application form, visit their web site at < www.norcrossws.org > and follow the link labeled Land Conservation Loans. Or contact Dan Donahue, Director of Land Protection & Stewardship, 30 Peck Road, Monson, MA 01057; phone & fax: (413) 267-9306; e-mail: dfdnrc@mindspring.com.

- **Watershed Conservation Strategy Summaries for Seven Maine Coastal Rivers in Southern Maine Are Now Available**

The Wells National Estuarine Research Watershed Conservation Strategy Summaries for seven coastal rivers in Southern Maine are now available on the Reserve's Stewardship web page < www.wellsreserve.org/cmp.htm > along with past editions of the Watershed Conservation Update.

- **Forestry Innovation Grants — "Clean Water and Healthy Watersheds"**

The Northeastern Area (NA) of the U.S. Forest Service (USFS) recently issued a Request for Proposals for the FY04 round of Forestry Innovation Grants. One of the three themes this grant round is "Clean Water and Healthy Watersheds". The overall goal of this theme is to promote watershed health and restoration through the establishment, restoration and sound stewardship of trees and forests. The Theme encourages taking a targeted watershed approach to assessment, planning, education, and demonstration projects that reduce storm water or flooding, improve air quality, protect water quality, restore aquatic habitat, and reduce pollution. Primary objectives are to: protect and improve drinking water supplies and the management of source water watersheds; protect and enhance the health of urbanizing watersheds; use forestry to enhance water quality and restore streams, wetlands, and aquatic habitats in agricultural landscapes; enhance the quality application of Forestry BMPs and the measurement of their success in protecting water quality; better understand and communicate the value of trees and forests in protecting and restoring watershed health, reducing pollution, and protecting wildlife and fish habitat; and expand partnerships between States and watershed or conservation organizations. Grant awards are expected to be in the range of $25-100,000. Projects require a 50:50 match from non-federal funding sources (matching funds can include in-kind services). Project timeline is 2 years once a grant is issued. The application deadline for submitting projects to the State Forester (who then recommends projects to the USFS) is 10/23/03 (a later deadline of 11/11/03 may apply in some cases). For questions regarding preparation and processing of proposals, contact Dave Welsch at the USFS's Durham Field Office [603-868-7616, dwelsch@fs.fed.us].

- **Friends of the Royal River**

The Friends of the Royal River (FORR) hired Henry Nichols (last winter) as the organization's first Executive Director. Over the past ten years, FORR has primarily been doing water quality monitoring of the Royal River and its tributaries. More recently, the organization has refocused its energies and also become a regional land trust. For more information, contact Henry Nichols at (207)-847-9399 or <royal@maine.rr.com>.

STORMWATER RESOURCES

1) INTRODUCTORY-LEVEL EDUCATION RESOURCES

- Maine DEP's Nonpoint Source Pollution Page < www.state.me.us/dep/blwq/doceducation/nps/index.htm >
- EPA's Polluted Runoff website < www.epa.gov/owow/nps >
- EPA's Water Topic of the Month: < www.epa.gov/water/yearofcleanwater/month.html >
- EPA's Webpage About Rainbarrels and Rain Gardens < www.epa.gov/reg3esd1/garden/stormwater.htm>

2) MORE ADVANCED EDUCATION AND MANAGEMENT RESOURCES

- Maine DEP's Stormwater Program < ww.state.me.us/dep/blwq/docstand/stormwater/index.htm >
- Maine DEP's Nonpoint Source Training and Resource Center < www.state.me.us/dep/blwq/training/index.htm >
- Maine DEP's Erosion & Sedimentation Control Best Management Practices (BMPs) Manual < www.maine.gov/dep/blwq/docstand/escbmps/index.htm >
- Maine DEP Toll-Free (in Maine) **Telephone** Line: 1-800-452-1942
- Maine NEMO (Nonpoint Education for Municipal Officials) < www.mainenemo.org >
- Center for Watershed Protection < www.cwp.org >;
- Stormwater Manager's Resource Center < www.stormwatercenter.net >
- The University of Maine Cooperative Extension Water Quality Program < www.umaine.edu/waterquality >
- The University of Maine Senator George J. Mitchell Center for Environmental and Watershed Research (click on "publications/digests") < www.umaine.edu/WaterResearch >

3) REPORTS ON URBANIZATION, STORMWATER, & WATER RESOURCES IN MAINE

Dudley, R., Hodgkins, G., Mann, A., Chisholm, J. 2001, Evaluation of the Effects of the Development on Peak-Flow Hydrographs for Collyer Brook, Maine, WRIR 01-4156, 11 pp. Available on the Internet at < http://me.water.usgs.gov/newreports.html >.

Guay, B. 2002. Preliminary assessment of storm-event water quality in Frost Gully Brook watershed, Freeport, Maine: 2000-2001. Final Report to the Cumberland County Soil and Water Conservation District, Gorham, Maine.

Huryn, A. D., V. M. B. Huryn, C. J. Arbuckle, and L. Tsomides. 2002. Catchment land-use, macroin vertebrates and detritus processing in headwater streams: taxonomic richness versus function. Freshwater Biology 47:401-415.

Morse, C. C. 2001. The response of first and second order streams to urban land-use in Maine, USA. M.S. Thesis, University of Maine - Orono, 98 pp.

Morse, C. C. and S. Kahl. 2003. Measuring the impact of development on Maine surface waters. University of Maine. Orono, Maine. Available on the Internet at < www.UMaine.edu/WaterResearch >.

Varricchione, J. T. 2002. A Biological, Physical, and Chemical Assessment of Two Urban Streams in Southern Maine: Long Creek and Red Brook. DEPLW0572. Volume I: Text, Figure, and Tables; Volume II: Appendices. Portland, ME. < www.state.me.us/dep/blwq/docmonitoring/stream/index.htm >

Woodcock, T. S. 2002. Effects of roadway-related physical and chemical habitat alterations on stream ecosystems. PhD. Thesis, University of Maine - Orono, 255, pp.

Calendar Items

Do you have calendar items for us? Please contact us by January 1, 2003.

World Water Monitoring Day: October 18, 2003. Worldwide. To commemorate the 30th anniversary of the Clean Water Act America's Clean Water Foundation established the first annual National Water Monitoring Day (NWMD) on October 18, 2002. Citizens were encouraged to take water samples from their local watersheds. America's Clean Water Foundation is continuing NWMD this year on the same date. For more information visit <www.worldwatermonitoringday.org>

Stormwater Management in Cold Climates Conference: Planning, Design and Implementation: November 3 - 5, 2003. Holiday Inn By the Bay, Portland, Maine. For more information, visit their website at < www.cascobay.usm.maine.edu >

Maine Stream Summit (MESS): April 7, 2004. University of Maine Hutchinson Center, Belfast, Maine. Mark your calendars for the second annual Maine Stream Summit. This fun and informative event is intended for both students and adults. Presentations will be made by student groups as well as neighborhood and regional grassroots organizations about what they are learning and the work they are doing. There will also be a number of workshops on topics ranging from stream ecology to data management. For updates and details about the conference, visit the MSTP website periodically or check out the January edition of the MSTP News.

Welcome New Stream Team!

#54 Bagaduce Stream Team

YOU ARE INVITED TO SEND US ...

your news or calendar items that you would like us to include in the upcoming newsletter.

RECEIVE NEWSLETTER BY E-MAIL!

We are moving toward sending the newsletter through email. This will help us to save on printing and delivery costs and paper. We will not sell your e-mail address to other entities. If you have email, please send us your address. For those who do not have email, we will continue to send you the newsletter through the mail.

Maine Stream Team Program
c/o Maine DEP
312 Canco Road
Portland, Maine 04103

Return Service Requested

How Do I Join the MSTP?

It's easy! First, choose a stream or stream segment. Next, either obtain a "stream team registration form" by contacting us or filling out the online registration form. After registering, you will receive some helpful information and begin to receive our periodic newsletter to help you stay up-to-date.

Membership to the program is free to any interested citizen, family, or organization. Once you have a "Team" and a stream, you're set! You can determine your stream's values and problems and you can plan projects based on your assessments. You establish the course of events in protecting your stream. The Maine Stream Team Program can help you with ideas, advice, and informational materials.

Contact The Maine Stream Team Program (MSTP):

Mail: Maine Stream Team Program, c/o Maine DEP, 312 Canco Road, Portland, ME 04103

E-mail: mstp@maine.gov **Internet**: www.state.me.us/dep/blwq

Please note: our e-mail address has changed

Phone: (888)769-1036 (toll free – ask for the Maine Stream Team Program); (207)822-6317 [Jeff Varricchione, Portland, coordinator]; (207)822-6427 [MaryLee Haughwout, Portland]; (207) 287-7729 [Mary-Ellen Dennis, Augusta]; (207)941-4566 [Mark Whiting, Bangor]

Deadline for submitting calendar items, articles, or photos for the next newsletter is January 1, 2003.

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